



Mud Lake Area Water Budget Data for ESPAM2.1

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Mud Lake Area Water Budget Data

Seepage (PCH)

- Camas Wildlife Refuge
- Mud Lake
- Flood Control

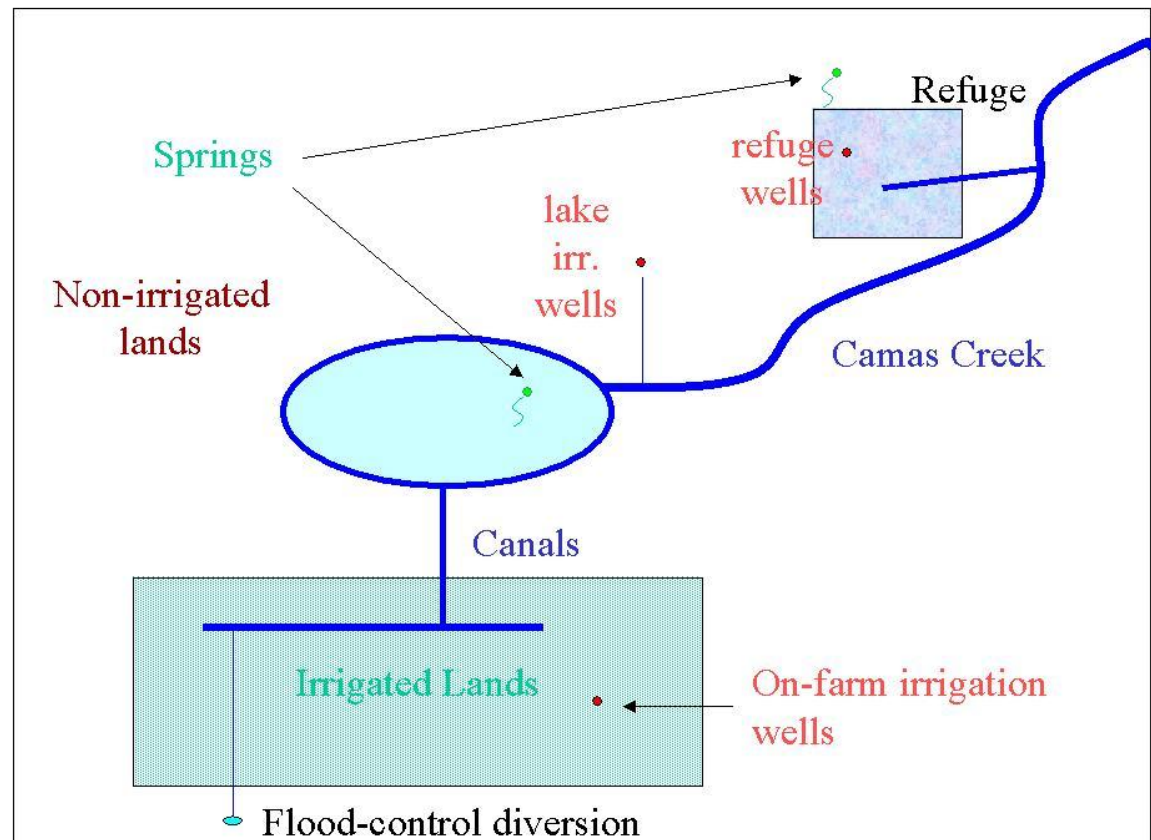
Well pumping to Mud Lake (FPT)

Diversions (DIV)

- Mud Lake entity
- Camas entity

NIR

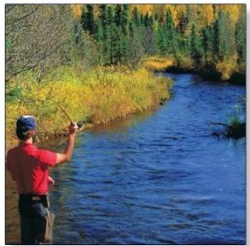
Wetlands ET

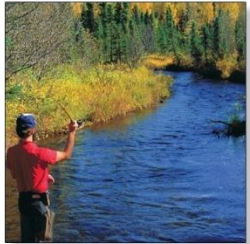
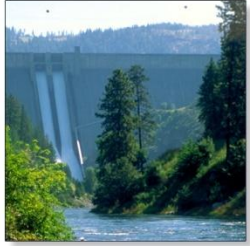


Mud Lake conceptual diagram (Contor, 2009)

Data Review

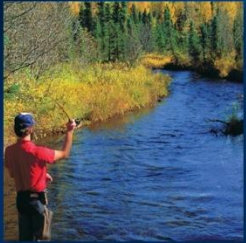
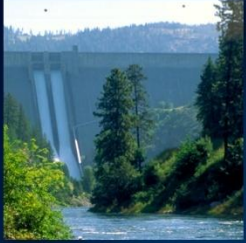
- Average annual Mud Lake seepage input data
 - ESPAM2.0 = 140,474 AF/yr
 - ESPAM1.1 = 9,028 AF/yr
- Reviewed IWRRI calculation of Mud Lake seepage
 - High average annual values in ESPAM2.0 resulted from:
 - Calculation used inconsistent units
 - Mud Lake well pumping values for 1980-2000 were typically about twice the volume recorded by Water District 31
 - Flood control diversions were added to, rather than subtracted from, seepage





Data Review

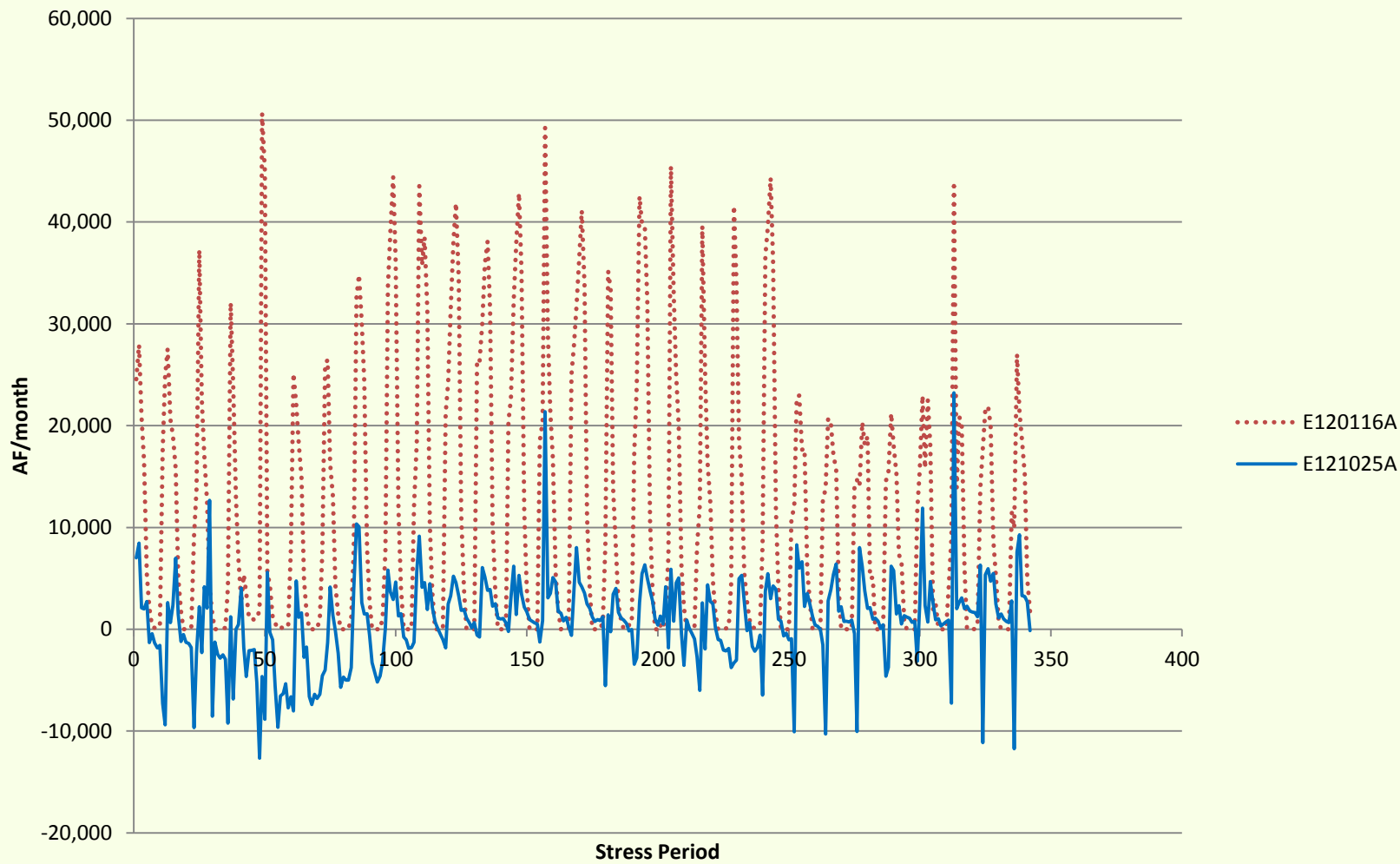
- Water District 31 records for 1980-2000 were reviewed to correct well pumping data
- Found other monthly data available to replace values estimated from annual or average data
 - Mud Lake entity diversions (IESW029)
 - Camas Wildlife Refuge
 - Flood control
 - Dubois entity diversions (IESW051)
- IWRRI reviewed Mud Lake seepage calculations following revisions made by IDWR
- Revised data, calculations, and memorandum describing revisions are posted on ESPAM website



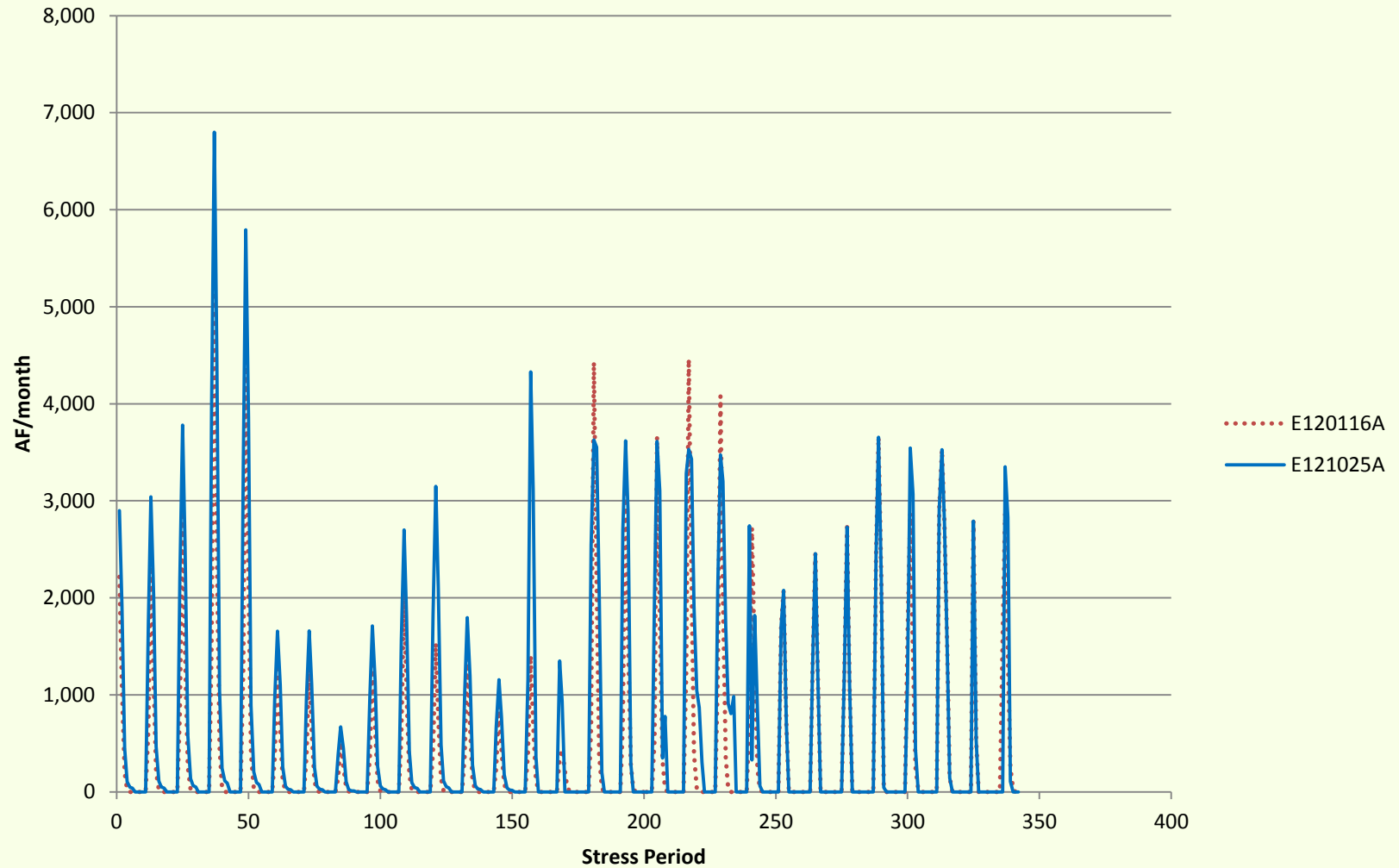
Comparison of Input Data Sets

Recharge Component	Average Annual Volume in ESPAM2.0 pre-PEST input data set (AF/yr)	Average Annual Volume in revised pre-PEST input data set (AF/yr)
Mud Lake seepage	140,474	8,505
Camas Wildlife Refuge seepage	5,051	7,593
B31 Flood Control seepage	2,998	3,354
IESW029 (Mud Lake) diversions	82,745	83,805
Mud Lake well pumping	-111,422	-70,673
IESW051 (Dubois) diversions	29,738	28,191
Subtotal (Mud Lake area)	149,593	60,775
Net change (Mud Lake area)	-88,818	

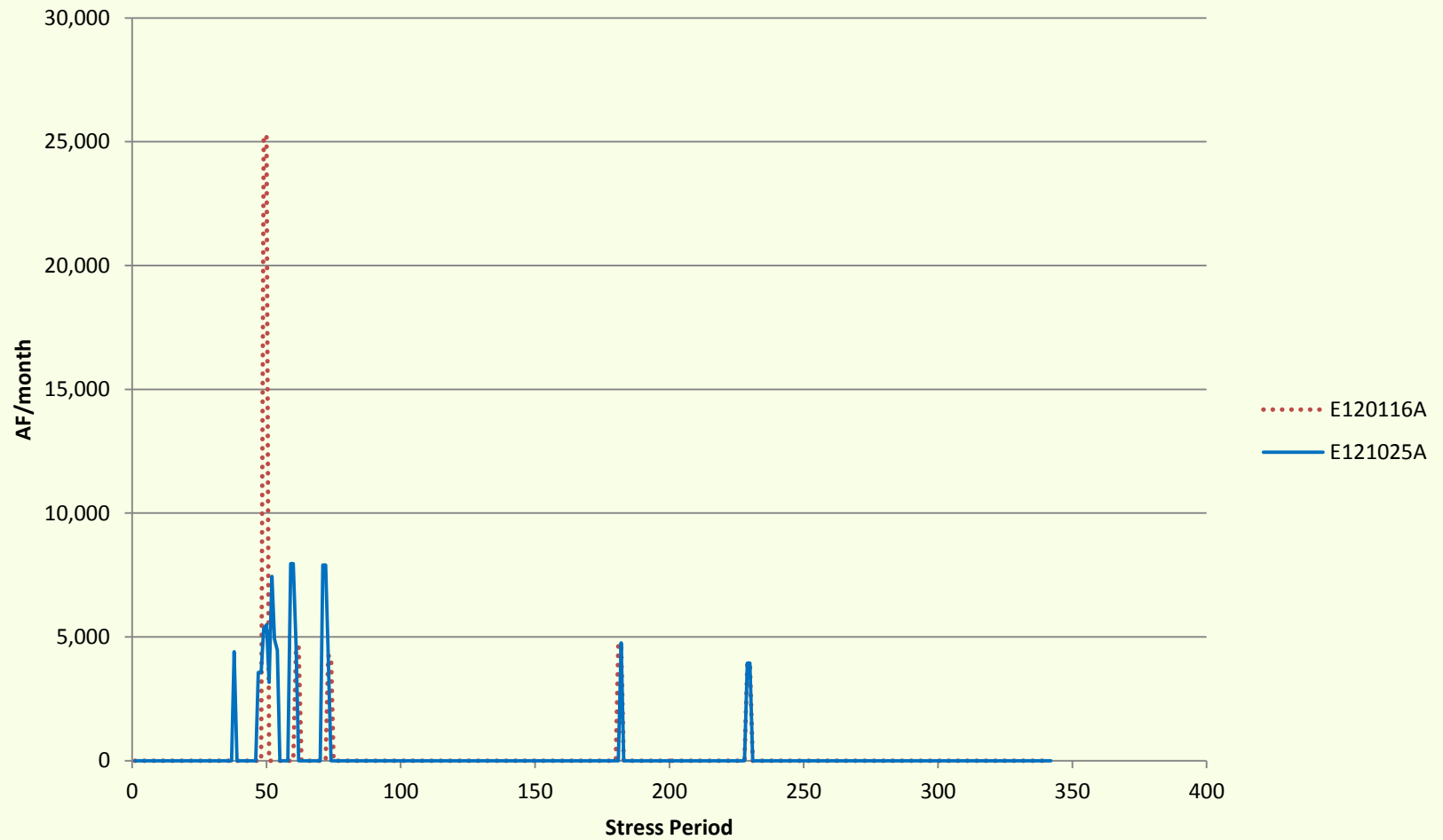
Mud Lake Seepage



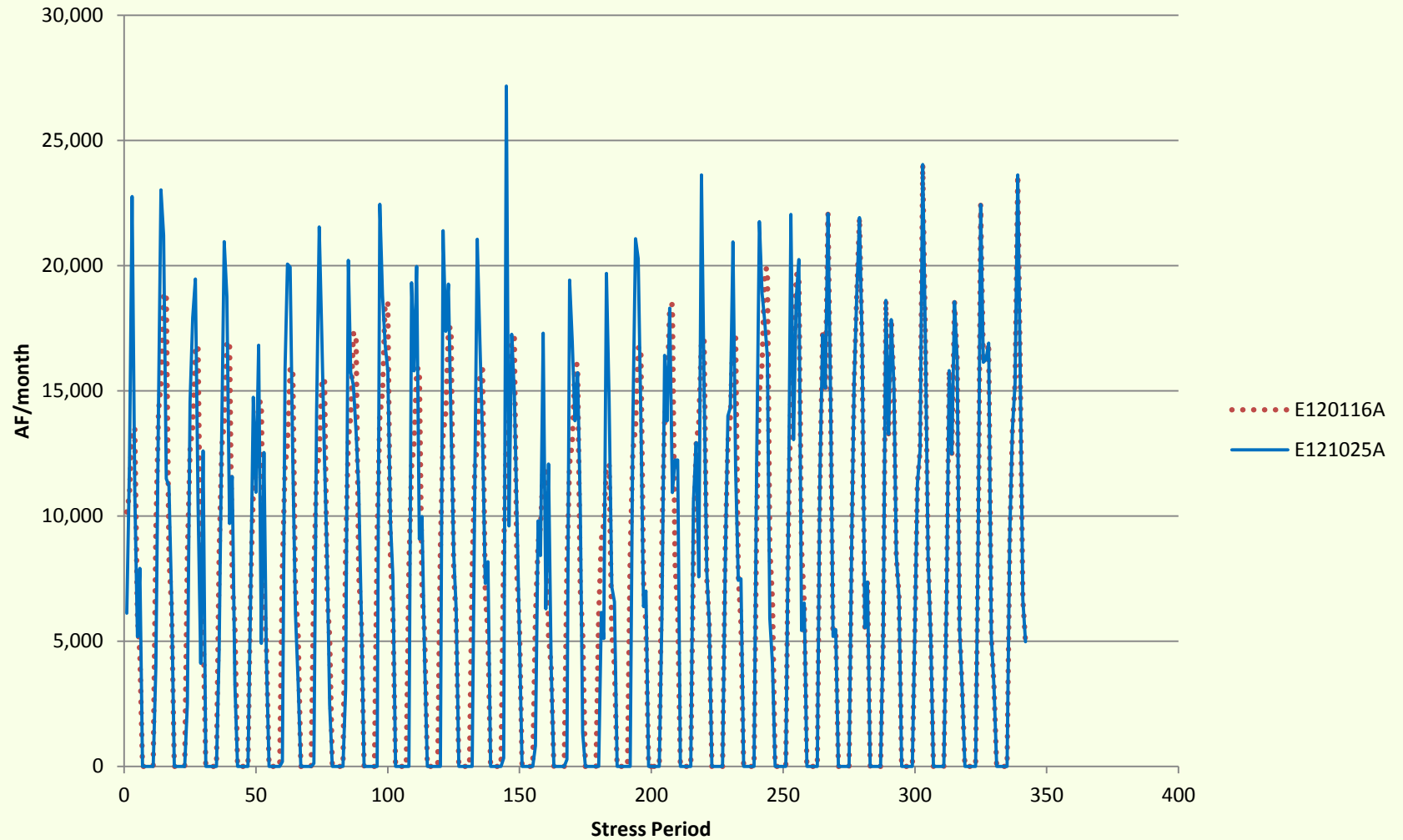
Camas Wildlife Refuge Seepage



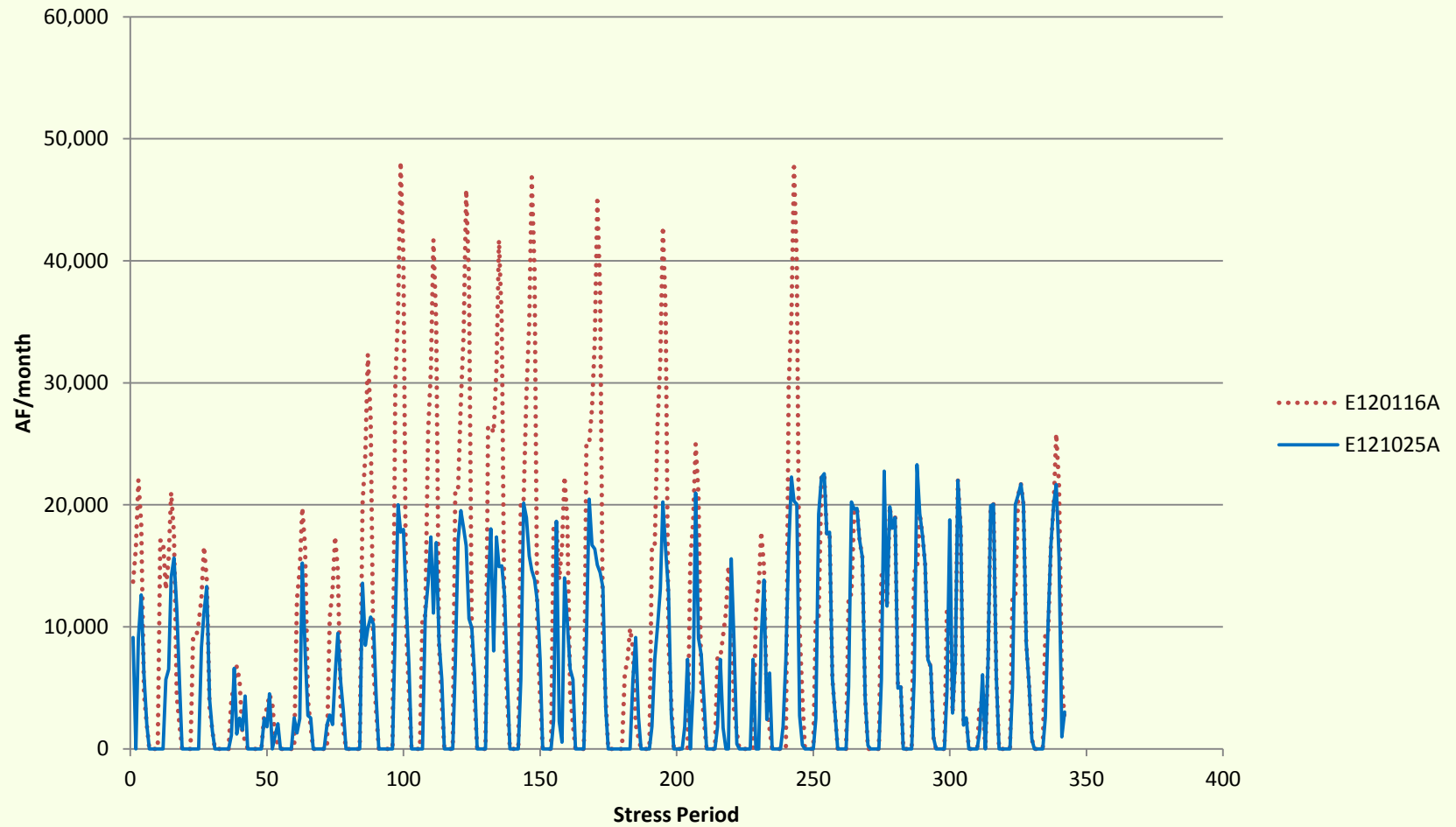
B31 Flood Seepage



Mud Lake Diversions



Mud Lake Pumping



IESW051 Diversions

